

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Ray C. Doutrich; Stuart C. Stoner;
Peter K. Townsend; David F. Fusselman

Serial No.: **Not yet** assigned

Group Art Unit: **Not yet** assigned

Filed: **Herewith**

Examiner: **Not yet** assigned

For: **ELECTRICALLY ENHANCED MODULAR CONNECTOR FOR
PRINTED WIRING BOARD**

Assistant Commissioner
for Patents
Washington, D.C. 20231

Dear Sir:

PRELIMINARY AMENDMENT

Prior to examination of the above-referenced patent application, please amend the application as follows:

In the Specification:

Please replace the paragraph beginning at page 1, line 19, with the following rewritten paragraph:

--In the electrical connector of the present invention a receptacle is connected to a daughter board. This receptacle has a housing having a first face and a second face and a plurality of terminals extending from the first face of the daughter board to the second face where there is an

interface with a shielded header. The header has two end walls and a medial wall and is comprised of a conductive material, preferable a suitable metallic alloy. A plurality of apertures extend through the medial wall and retain signal pins which contact the terminals in the receptacle. There is a first and second face on the medial wall. The first face interfaces with the second face of the receptacle. The second face abuts the printed wiring board. On the second face there are a plurality of recesses into which conductive pins are press fitted to ground the connector. On the inner side of the end walls of the header there are also axial grooves which retain removable springs which contact shields on the receptacle to further aid in grounding the connector.--

Please replace the paragraph beginning at page 3, line 2, with the following rewritten paragraph:

--Referring to the figures, the receptacle is shown generally at numeral 10, the shielded header is shown generally at numeral 12. Referring particularly to the figures 1 through 6, the receptacle includes a housing generally at numeral 14 with a first planar face 16, a second planar face 18. Terminals as at 20 extend from the first planar face to the second planar face through passageways as at 21 and then through cavities as at 22. The housing includes top metallic shield 24 and a bottom metallic shield 26. It also includes alignment ribs 28 and 30 and code key holders 32 and 34. Grounding is effected through ground pins 36, 37 and 38 and press peg 40 is used to fix receptacle to a daughter printed wiring board 42 along with the terminals. Referring particularly to figures 2 and 8 through 15, the header includes end walls 44 and 46 and medial wall 48 which is perpendicularly interposed between the end walls. The medial wall includes a first planar face 50

and a second planar face 52. The header 10 can be die cast of a suitable metallic alloy. Passageways as at 54 extend transversely across the medial wall from the first planar face to the second planar face and are equipped with insulative sleeves as at 56 which are integrated with an insulative plate 57. Conductive signal pins as at 58 extend through these passageways to engage the terminals as at 20 positioned in cavities as 22 in the receptacle. On the second planar face of the medial wall there are recesses as at 59 and 60 which extend only partially through this wall and which receive grounding pins as at 62 and 64 by press fit. As is particularly shown in Fig. 14, the signal pins have shoulder 63 and base insulation rings 65. Other grounding pins 66 and 68 engage other similar recesses in the second planar face of the medial wall. It will be appreciated that additional recesses may be used so that there will be more than one potential position for each grounding pin and so that the grounding pins can be selectively positioned. The grounding pins pass through slots as at 69 in the insulative plate 57. On the inner side of the end walls 44 and 46 there are respectively central vertical grooves 70 and 72. In central vertical groove 70 there is a metallic contact spring 74 which is comprised of a top locking section 76 which engages the side of the groove and is press fit into the groove. A concave section 78 which extends inwardly then back toward the groove, a vertical section 80 and a lower locking section 82 which also engages the groove and which is press fit into the groove. The vertical groove 72 also has a metallic spring 84 which similarly has a top locking section 86, a concave section 88, a vertical section 90 and a lower lock section 92. On each side of the vertical groove 70 there is a lateral vertical groove 94 and 96 which are alignment features that engage ribs 28 and 30 on the receptacle. The spring contacts 74 and 84 are removable from the

grooves in which they are mounted and can be optionally used, depending upon the specific characteristics of the receptacle with which they are to be used. The end wall 46 also includes a groove 97 which is useful in the manufacturing of the connector but which has no function thereafter. This end wall also has a recess 98 on its inner side to accommodate the press pin 40. As is particularly shown in Fig. 10, it will be understood that the pins of the header are connected to a mother printed wiring board 100 through apertures as at 102.--

In the Claims:

Cancel claims 2-26.

Please amend claim 1 as follows:

1. (Once Amended) An electrical connector comprising in combination a receptacle comprising a housing having a first face and a second face and a plurality of conductive elements each extending from said first face to said second face and a header having a conductive housing comprising generally parallel end walls with opposed inner faces and a medial wall is interposed between said opposed parallel end walls, said medial wall having a first face and a second face wherein said first face of the medial wall is adjacent to the second face of the receptacle element and a plurality of passages extend between the first and second faces of the medial walls and a plurality of conductive signal pins pass through at least some of said passages and a separate grounding element is attached to the conductive housing of the header.

In the Abstract:

Please replace the Abstract with the following rewritten Abstract:

--Abstract

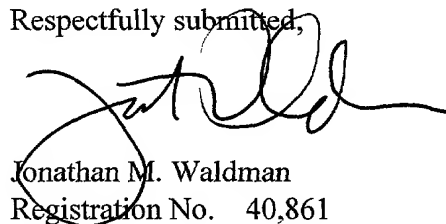
An electrical connector for connecting a daughter and a mother printed wiring board.

A receptacle is connected to one board on one face and to the header on the other. The header has a conductive housing with opposed end walls and a medial pin receiving wall where it is connected to the other board. The receptacle housing is electrically connected to the header conductive housing by removable springs extending from the end walls of the header housing and separate removable grounding pins extending to a printed wiring board from the medial wall.--

Examination of the present application and an early notice of allowance is respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

Respectfully submitted,



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Date: August 30, 2001

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VERSION WITH MARKINGS TO SHOW CHANGES MADE**In the Specification:**

Paragraph beginning at page 1, line 19, has been amended as follows:

In the electrical connector of the present invention a receptacle is connected to a daughter board. This receptacle has a housing having a first face and a second face and a plurality of terminals [extend] extending from the first face of the daughter board to the second face where there is an interface with a shielded header. The header has two end walls and a medial wall and is comprised of a conductive material, preferable a suitable metallic alloy. A plurality of apertures extend through the medial wall and retain signal pins which contact the terminals in the receptacle. There is a first and second face on the medial wall. The first face interfaces with the second face of the receptacle. The second face abuts the printed wiring board. On the second face there are a plurality of recesses into which conductive pins are press fitted to ground the connector. On the inner side of the end walls of the header there are also axial grooves which retain removable springs which contact shields on the receptacle to further aid in grounding the connector.

Paragraph beginning at page 3, line 2, has been amended as follows:

Referring to the figures, the receptacle is shown generally at numeral 10, the shielded header is shown generally at numeral 12. Referring particularly to the figures 1 through 6, the receptacle includes a housing generally at numeral 14 with a first planar face 16, a second planar face 18. Terminals as at 20 extend from the first planar face to the second planar face

through passageways as at 21 and then through cavities as at 22. The housing includes top metallic shield 24 and a bottom metallic shield 26. It also includes alignment ribs 28 and 30 and code key holders 32 and 34. Grounding is effected through ground pins 36, 37 and 38 and press peg 40 is used to fix receptacle to a daughter printed wiring board 42 along with the terminals. Referring particularly to figures 2 and 8 through 15, the header includes end walls 44 and 46 and medial wall 48 which is perpendicularly interposed between the end walls. The medial wall includes a first planar face 50 and a second planar face 52. The header 10 can be die cast of a suitable metallic alloy. Passageways as at 54 extend transversely across the medial wall from the first planar face to the second planar face and are equipped with insulative sleeves as at 56 which are integrated with an insulative plate 57. Conductive signal pins as at 58 extend through these passageways to engage the terminals as at 20 positioned in cavities as 22 in the receptacle. On the second planar face of the medial wall there are recesses as at 59 and 60 which extend only partially through this wall and which receive grounding pins as at 62 and 64 by press fit. As is particularly shown in Fig. 14, the signal pins have shoulder 63 and base insulation rings 65. Other grounding pins 66 and 68 engage other similar recesses in the second planar face of the medial wall. It will be appreciated that additional recesses may be used so that there will be more than one potential position for each grounding pin and so that the grounding pins can be selectively positioned. The grounding pins pass through slots as at 69 in the insulative plate 57. On the inner side of the end walls 44 and 46 there are respectively central vertical grooves 70 and 72. In central vertical groove 70 there is a metallic contact spring 74 which is comprised of a top

locking section 76 which engages the side of the groove and is press fit into the groove. A concave section 78 which extends inwardly then back toward the groove, a vertical section 80 and a lower locking section 82 which also engages the groove and which is press fit into the groove. The vertical groove 72 also has a metallic spring 84 which similarly has a top locking section 86, a concave section 88, a vertical section 90 and a lower lock section 92. On each side of the vertical groove 70 there is a lateral vertical groove 94 and 96 which are alignment features that engage ribs 28 and 30 on the receptacle. The spring contacts 74 and 84 are removable from the grooves in which they are mounted and can be optionally used, depending upon the specific characteristics of the receptacle with which they are to be used. The end wall 46 also includes a groove 97 which is useful in the manufacturing of the connector but which has no function thereafter. This end wall also has a recess 98 on its inner side to accommodate the press pin 40. As is particularly shown in Fig. 10, it will be understood that the pins of the header are connected to a mother printed wiring board 100 through apertures as at 102.

In the Claims:

Claims 2-26 have been cancelled.

Claim 1 has been amended as follows:

1. (Once Amended) An electrical connector comprising in combination a receptacle comprising a housing having a first face and a second face and a plurality of conductive [means] elements each extending from said first face to said second face and a header having a conductive housing comprising generally parallel end walls with opposed inner faces

and a medial wall is interposed between said opposed parallel end walls, said medial wall having a first face and a second face wherein said first face of the medial wall is adjacent to the second face of the receptacle element and a plurality of passages extend between the first and second faces of the medial walls and a plurality of conductive signal pins pass through at least some of said passages and a separate grounding [means] element is attached to the conductive housing of the header.

In the Abstract:

The Abstract has been rewritten as follows:

Abstract

An electrical connector for connecting a daughter and a mother printed wiring board. A receptacle is connected to one board on one face and to the header on the other. The header has a conductive housing with opposed end walls and a medial pin receiving wall where it is connected to the other board. The receptacle housing is electrically connected to the header conductive housing by removable springs extending from the end walls of the header housing and separate removable grounding pins [extend] extending to a printed wiring board from the medial wall.